



Jefferson Science Associates, LLC

# **1200 Project Control System Procedures**

**Project Control System Manual  
Revision 4**



# **Project Control System Procedure PCS-01 Schedule Planning**



**PCS-01 Schedule Planning Procedure**

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**2.0 Procedures**

**3.0 Process Flow Diagrams**

**3.1 Schedule Baseline Development Flow Diagram**



## **PCS-01 Schedule Planning Procedure**

### **1.0 General**

This document defines the procedures and responsibilities for developing a project baseline schedule. In cooperation with the Project Customer, all levels of the project management team are involved in the process of establishing a timetable of milestones and activities that will lead to a successful project outcome.

### **2.0 Procedures**

The following Schedule Planning procedures are graphically displayed in Diagram 3.1.

- 1 - The Project Customer and the Project Manager jointly determine the Baseline Milestones.

The Project Manager, collaborating with the Project Customer, selects the project key events and decision points that constitute the master schedule. Titles, definitions and planned dates are determined for each Baseline Milestone.

- 2 - The Project Management & Integration Division (PM&I) develops the Baseline Milestones Schedule.

PM&I loads the Baseline Milestones (Level 1 and 2) with their associated planned dates into the Schedule Management System forming a Baseline Milestones Schedule.

- 3 - The Project Management & Integration Division, the Associate Project Manager, and the Control Account Manager identify the Intermediate Milestones.

Based on the defined Baseline Milestones, PM&I, the Associate Project Manager(s), and the Control Account Manager(s) identify the important Level 3 and 4 milestones of the project.

- 4 - The Project Management & Integration Division develops the Intermediate Milestone Schedule.

PM&I loads the Intermediate Milestones with their associated planned dates into the Schedule Management System forming an Intermediate Milestones Schedule.

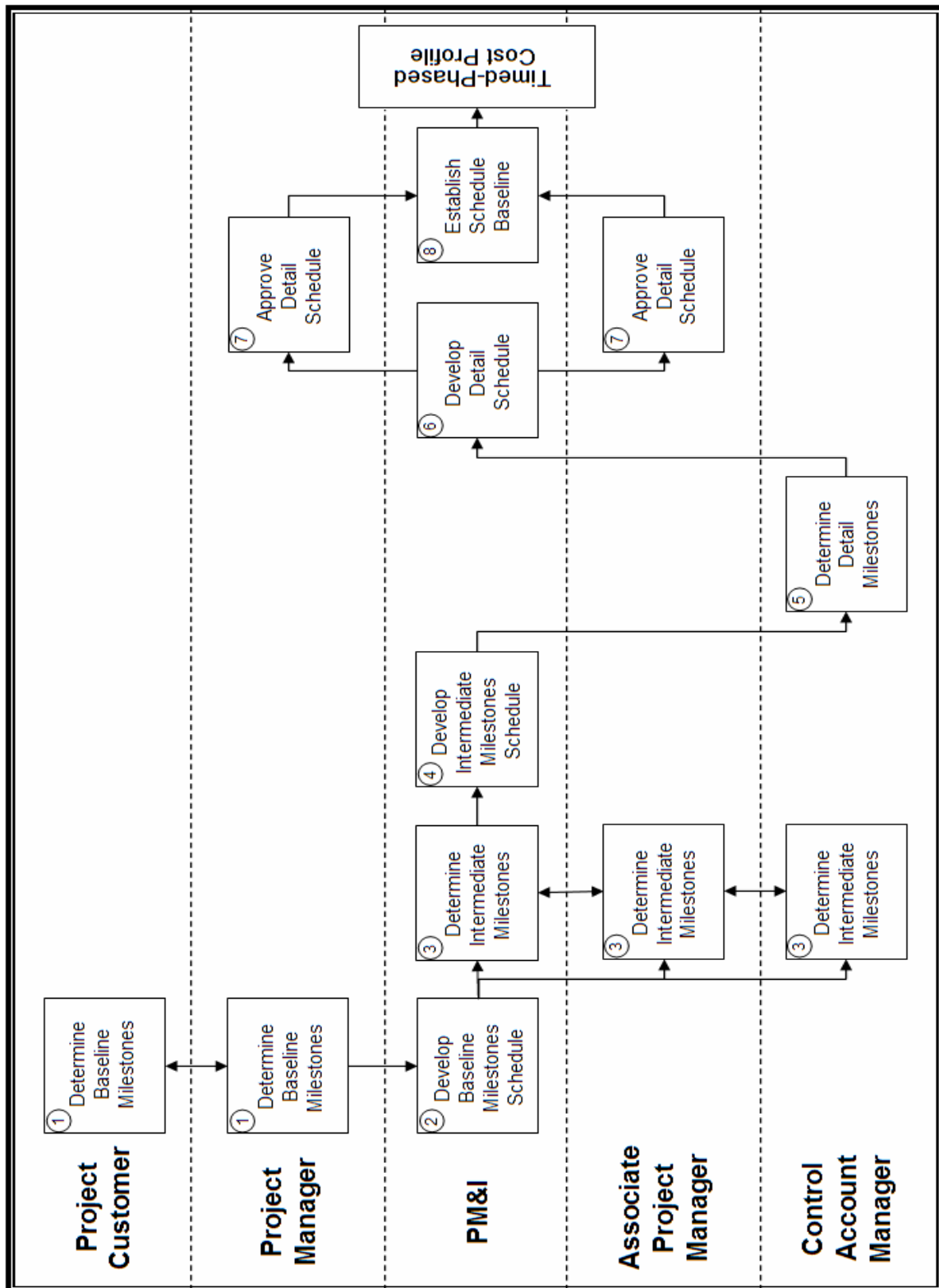


- 5 - The Control Account Managers develop the Detail Milestones.  
Appropriate Detail Milestones are identified by the Control Account Managers for their control accounts.
- 6 - The Project Management & Integration Division develops the Detail Schedule.  
With the schedule data from the Control Account Plans, PM&I develops the project Detail Schedule. Start dates, duration, preceding activities, and succeeding activities are entered for each activity. Resources and budgets allocated to the Control Account Plan activities are also integrated into the Detail Schedule.
- 7 – The Associate Project Manager and Project Manager approve the Detail Schedule.  
After PM&I integrates the information from the Control Account Plans into the Detail Schedule, the Associate Project Manager and Project Manager review and approve the Detail Schedule.
- 8 - The Project Management & Integration Division establishes the schedule baseline.  
After the Detail Schedule has been approved, this schedule becomes the schedule baseline. With the resources and budgets identified in the cost baseline integrated with the activity schedule in the schedule baseline, the project Time-Phased Cost Profile is established. PM&I also generates a Working Detail Schedule.

### **3.0 Process Flow Diagrams**

#### **3.1 Schedule Baseline Development Flow Diagram**

### 3.1 Schedule Baseline Development Flow Diagram





# **Project Control System Procedure PCS-02 Cost Planning**



**PCS-02 Cost Planning Procedure**

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**1.0 General**

**2.0 Procedures**

**3.0 Process Flow Diagrams**

**3.1 Cost Baseline Development Flow Diagram**





## **PCS-02 Cost Planning Procedure**

### **1.0 General**

This document defines the procedures and responsibilities for developing a project cost baseline. With funding guidance from the Project Customer, all levels of the project management team are involved in the process of producing a project cost estimate. When combined with the project schedule, a timed-phase budget will be established against which project performance can be measured.

### **2.0 Procedures**

The following Cost Planning procedures are graphically displayed in Diagram 3.1.

- 1 - The Project Customer provides funding guidance.  
Based on the desired final product and the expected funding availability, the Project Customer will usually provide the Project Manager with a funding profile for the project.
- 2 - The Project Manager determines an initial project budget target.  
Taking the funding guidance provided by the Project Customer, the Project Manager establishes initial budget targets for the project. With a preliminary WBS framework, proposed budgets may be prescribed as well as a fiscal year breakouts.
- 3 - The Control Account Manager develops the Control Account Plan.  
The Control Account Manager develops an initial Control Account Plan that will be used to establish the initial cost estimate.
- 4 - The Associate Project Manager reviews the Control Account Plan.  
The Associate Project Manager reviews the Control Account Plan(s) within his area of responsibility. Plans that are not complete are returned to the appropriate Control Account Manager for revision. Once satisfactory, the Control Account Plan(s) is/are forwarded to the Project Management & Integration Division.
- 5 - The Project Management & Integration Division reviews the Control Account Plans.  
PM&I reviews the Control Account Plans to ensure that the project cost estimate does not exceed any pre-established funding constraints.

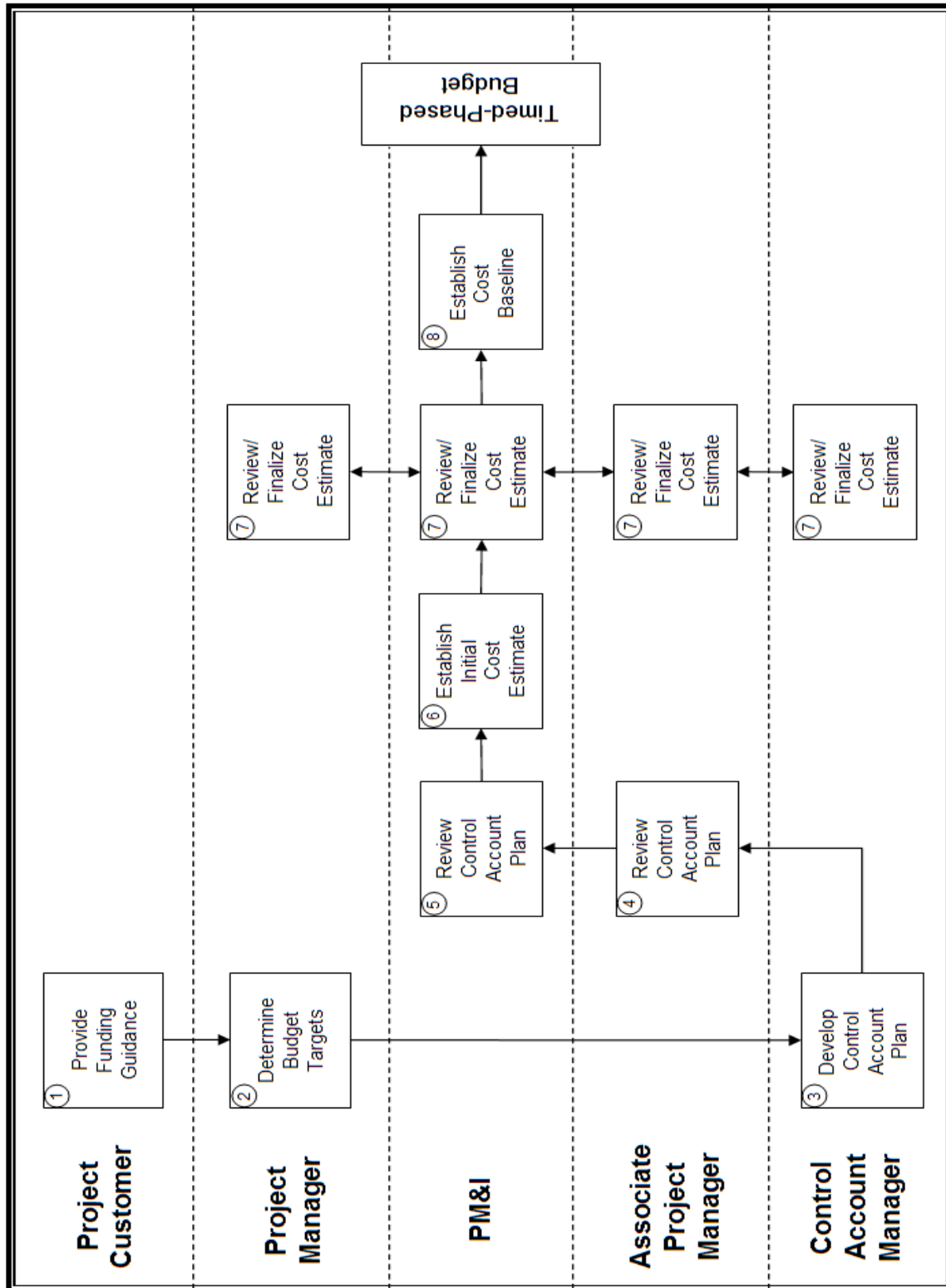


- 6 - The Project Management & Integration Division establishes the initial cost estimate.  
The costs from each Control Account Plan are summarized to establish an initial cost estimate.
- 7 - The Project Management team reviews and finalizes the cost estimate.  
The Project Management team reviews the consolidated cost estimate for the project, and through negotiation, finalize the estimate. The Control Account Manager revises the Control Account Plan for each relevant control account based on the final negotiated cost estimate for the project.
- 8 - The Project Management & Integration Division establishes the cost baseline.  
With approved Control Account Plans, the project cost baseline is established. This cost baseline is then integrated with the schedule baseline to produce the project Time-Phased Budget.

### **3.0 Process Flow Diagrams**

#### **3.1 Cost Baseline Development Flow Diagram**

### 3.1 Cost Baseline Development Flow Diagram





# **Project Control System Procedure PCS-03 Performance Reporting**



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**1.0 General**

**2.0 Procedures**

**3.0 Process Flow Diagrams**

**3.1 Performance Reporting Flow Diagram**



## **PCS-03 Performance Reporting Procedure**

### **1.0 General**

This document defines the procedures and responsibilities for collecting and reporting cost and schedule performance data and analyzing these data to assess current and projected future project status. Cost and schedule performance is measured and reported monthly for each control account and WBS element, as appropriate.

### **2.0 Procedures**

The following Performance Reporting procedures are graphically displayed in Diagram 3.1.

- 1 - The Project Manager determines the variance thresholds.  
The Project Manager determines the thresholds used to flag variances for each control account and WBS element, as appropriate.
- 2 - The Control Account Manager prepares the Status Update Report.  
At the end of the accounting period, the Control Account Manager reports the control account work progress and accomplishments by providing input on the Status Update Report.
- 3 - The Associate Project Manager reviews the Status Update Report.  
The Associate Project Manager validates work activity completions and makes assessment of interim progress.
- 4 - The Project Management & Integration Division determines the Budgeted Cost of Work Performed.  
Exporting the data from the Status Update Reports to the Scheduling Management System, PM&I calculates BCWP (Earned Value) by summing the budgets of work accomplished and completed portions of work in progress for each control account.
- 5 - The performing organizations report expenses incurred.  
Performing organizations charge actual costs incurred throughout the reporting period using the Jefferson Lab accounting system.
- 6 - The Chief Financial Office prepares the cost reports.  
The Chief Financial Office converts time sheets, purchase orders, receipts and invoices, travel expense vouchers, and other entry documents into costs and commitments for each control account. Labor and cost reports



are prepared by the Chief Financial Office and are available to the Control Account Managers and Associate Project Managers for review and to PM&I for entering into the performance database.

- 7 - The Control Account Manager reviews the cost reports.  
The Control Account Manager reviews the cost reports for accuracy and control of costs. Unusual or excessive charges are investigated and errors are reported to the Chief Financial Office.
- 8 - The Associate Project Manager reviews the cost reports.  
Each Associate Project Manager reviews actual costs with the Control Account Manager directing the effort.
- 9 - The Project Management & Integration Division prepares the performance reports.  
PM&I combines ACWP (Actual Costs) data from accounting, BCWS (Planned Value), and Budget At Completion from the Performance Measurement Baseline, BCWP (Earned Value) as determined in step 4 above, and Estimate At Completion to calculate cost, schedule, and at-completion variances. Results are published in monthly performance reports (Project Analysis Reports) and charts (Earned Value Management Performance Charts/Performance Indicator Charts). The Red Flag Report is also generated where significant variances are flagged in accordance with the thresholds established by the Project Manager.
- 10 - The Project Management team reviews the Control Account Performance Report.  
The Control Account Performance Report consists of those combined performance reports available to the Control Account Manager from the financial management system and the schedule/cost management systems. Each Control Account Manager reviews the Control Account Performance Report, notes variances, and determines reasons for above or below planned performance. Each Associate Project Manager reviews the Control Account Performance Reports and the technical progress for their area of responsibility and discusses the work, cost, and schedule status with the responsible Control Account Manager. The Project Manager reviews the all reports and identifies reporting elements of the WBS for which formal Variance Analysis Reports are required.
- 11 - The Project Management & Integration Division issues the Variance Analysis Report form.  
PM&I issues a Variance Analysis Report form for each reporting element requiring a Variance Analysis Report.



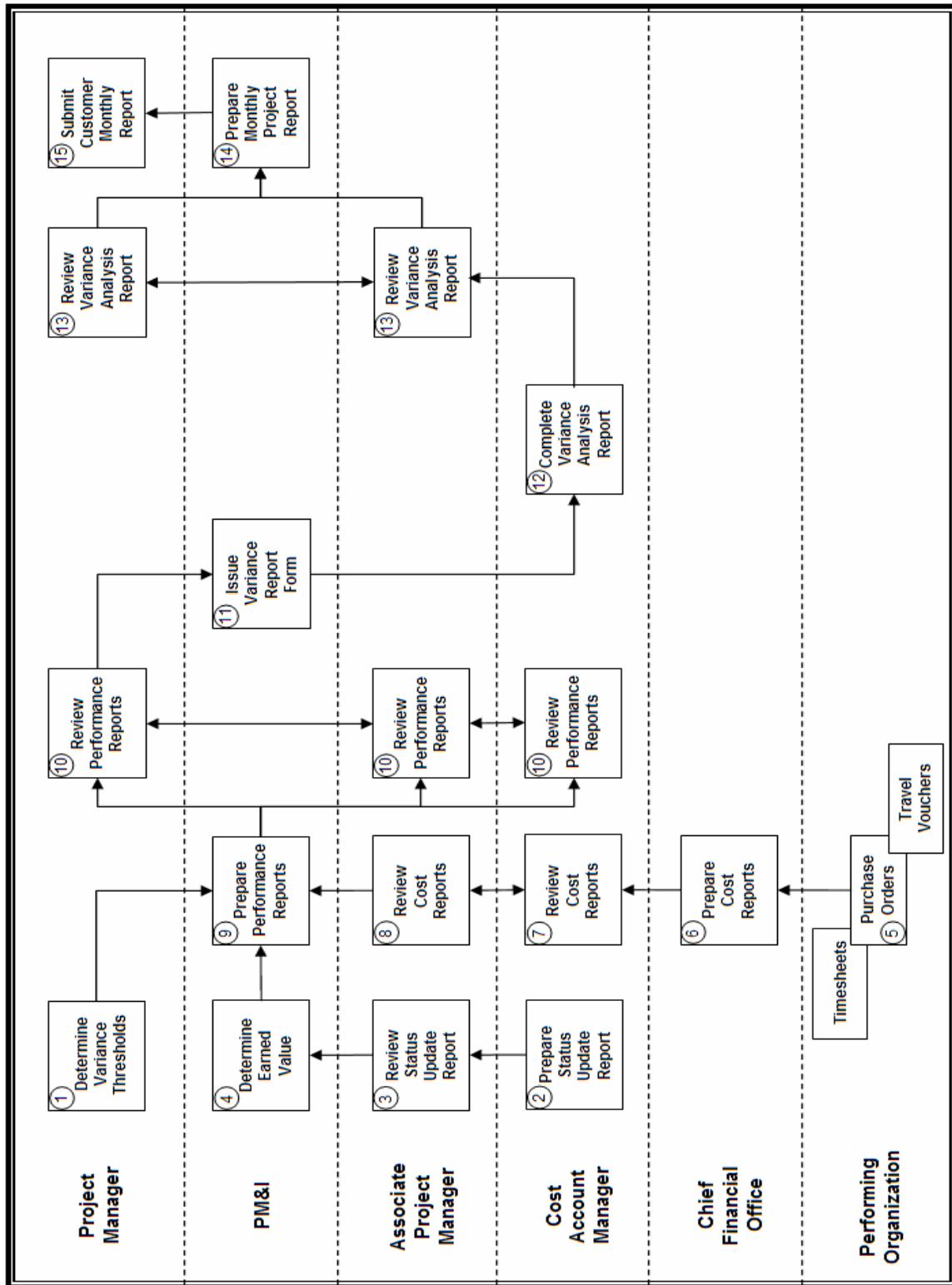
- 12 - The Control Account Manager completes the Variance Analysis Report.  
The Control Account Manager conducts a variance analysis to include the reasons for the variances, the anticipated effect on the project cost, schedule or technical parameters, and proposed corrective action.
- 13 - The Project Manager reviews the Variance Analysis Reports with the Control Account Managers and Associate Project Managers.  
The Project Manager reviews the Variance Analysis Reports with the Control Account Managers and Associate Project Managers to ensure accurate variance causes are identified and adequate corrective plans are established. The Variance Analysis Report form is signed by the Control Account Manager and the Associate Project Manager/Project Manager.
- 14 - The Project Management & Integration Division prepares the monthly project report.  
PM&I collects all pertinent project performance data and summarizes it for the monthly report. PM&I forwards the monthly report, including the revised Estimates At Completion, to the Project Manager.
- 15 - The Project Manager submits the monthly report to the Project Customer.  
The Project Manager reviews the monthly report and submits it to the Project Customer.

### **3.0 Process Flow Diagrams**

#### **3.1 Performance Reporting Flow Diagram**



### 3.1 Performance Reporting Flow Diagram





# **Project Control System Procedure PCS-04 Change Control**



**PCS-04 Change Control Procedure**

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**3.2 Review Phase Flow Diagrams**

- **External Approval**
- **Internal Approval**

**3.3 Documentation Phase Flow Diagram**



## **PCS-04 Change Control Procedure**

### **1.0 General**

The Integrated Project Baseline is the approved technical, schedule and cost plan for accomplishing all project activities. As the project progresses, this baseline may change due to Project Customer redirection, internal replanning, or redesign. Changes are classified according to the extent that they impact the Integrated Project Baseline. The review process and the approval authority required for a proposed change depend upon its classification. This document defines the procedures and responsibilities for requesting, reviewing, and documenting changes to the Integrated Project Baseline, and to assure timely implementation of changes once they are approved.

### **2.0 Procedures**

The following procedures for requesting, reviewing and documenting change requests are keyed to the Change Control process flow diagrams (Section 3.0).

#### **2.1 Request Phase (See Diagram 3.1)**

Any project team member may request a change to the technical, schedule, and cost baselines by generating a Change Request form and submitting it to a member of the Change Control Board for concurrence.

- 1 - The Originator prepares the Change Request.  
The originator prepares the Change Request form in accordance with the document instructions. Change Request status at this stage is "New."
- 2 - The Change Control Board member concurs with the Change Request.  
The originator must then obtain the concurrence of one member of the Change Control Board in order for the request to be accepted for consideration. The concurring member signs the Change Request in the 'Concurrence' block.
- 3 - The Change Control Board member initiates the Change Impact Assessment process.  
If the Change Impact Assessment has not been completed on the Change Request form, the Change Control Board member assigns actions for analyses of potential technical, schedule, cost and quality/safety effects of the proposed change. Primary responsibility is typically assigned to a Control Account Manager.



- 4 - The Project Management & Integration Division enters the Change Request in the Change Request Log.

After Change Control Board member concurrence is obtained, PM&I assigns a number (scheme: FY - sequence #, e.g., 05-001) to the Change Request and enters it in the Change Request Log as “Open.” PM&I maintains this log as a database, updating information each time there is a change to the status of a Change Request. For Class 1-2 and Class 3 changes, PM&I distributes the Change Request to members of the Change Control Board, and places the Change Request on the agenda for the next Change Control Board meeting.

- 5 - The Control Account Manager coordinates inputs to the Change Impact Assessment.

The assigned Control Account Manager completes the Change Impact Assessment. The Change Impact Assessment records the potential impacts of the proposed change to the technical, schedule and cost baselines and also to safety and quality. The impacts of not approving the change are also documented. The Control Account Manager coordinates inputs from relevant parties, such as scientists, engineers, contractors, and quality and safety personnel, to document these potential impacts. Continuation pages are attached to the Change Request form where space is insufficient. Where drawings, specifications, purchase orders, Control Account Plans, etc., are affected, changes are marked on copies and attached.

- 6 - The Control Account Manager establishes the classification of the Change Request.

After reviewing the Change Impact Assessment and exhibits, the Control Account Manager establishes the Change Request classification. The Control Account Manager selects the appropriate class and signs the appropriate block on the Change Request form.

- 7 - The Associate Project Manager concurs with the classification of the Change Request.

The Associate Project Manager reviews the classification assigned by the Control Account Manager and, if he concurs, signs the adjacent block.

- 8 - The Project Management & Integration Division approves the classification of the Change Request.

The PM&I Manager reviews the classification assigned by the Control Account Manager and, if he concurs, signs the next block on the Change Request form. The classification may also be reviewed and changed by the Change Control Board.



## **2.2 Review Phase (See Diagram 3.2)**

After the Change Request has been generated, impacts have been assessed, and an approved classification level has been established, it enters the Review Phase where the proposed change is evaluated and approved by an appropriate authority. For Class 1-2 Change Requests that will go to the Project Customer, this will be an external approval process. Class 3-5 Change Requests follow an internal approval process.

- External Approval

9 - The Project Management & Integration Division updates the Change Request Log.

Once PM&I has approved the classification level, the Change Request enters the Review Phase. PM&I monitors the status of Change Requests awaiting action.

10 - The Change Control Board evaluates the Class 1-2 Change Request.

For Class 1-2 Change Requests, PM&I distributes the Change Request to members of the Change Control Board and places the Change Request on the agenda for the next board meeting. The Change Control Board evaluates the Class 1-2 Change Request package and recommends action to the Project Manager.

11 - The Project Manager reviews the Class 1-2 Change Request.

The Project Manager reviews the Class 1-2 Change Request package and Change Control Board recommendations. The Project Manager prepares a submission to the Project Customer in accordance with customer procedures which may include a Baseline Change Control Board. This may include the Change Request as received, with some or all of the exhibits, or it may be a letter extracted from the Change Request material with additional amplification where necessary.

12 - The Project Customer approves/disapproves the Class 1-2 Change Request.

For Class 1-2 Change Requests, the Project Customer is the final approving authority. Approval is indicated by signature in the appropriate 'Final Approval' block on the Change Request form. The approved Class 1-2 Change Request package is then returned to the Project Manager.

13 - The Project Manager reviews the Project Customer Change Request actions.

The Project Manager reviews the decisions of the Project Customer and documents any impacts to the project plans in the Recommendation and Disposition section of the Change Request.



- 14 - The Project Management & Integration Division determines the approval status of the Change Request.

PM&I updates the Change Request Log after the review process has been completed. At this stage, the Change Request can be deferred, approved, disapproved or determined to be a duplicate of a previously submitted Change Request. Any disapproved CR is sent back to the affected Control Account Manager who will consult with the originator to determine any further action.
- **Internal Approval**
- 9 - The Project Management & Integration Division updates the Change Request Log.

Once PM&I has approved the classification level, the Change Request enters the Review Phase. PM&I monitors the status of Change Requests awaiting action.
- 10 - The Change Control Board evaluates the Class 3 Change Request.

For Class 3 Change Requests, PM&I distributes the Change Request to members of the Change Control Board and places the Change Request on the agenda for the next board meeting. The Change Control Board evaluates the Class 3 Change Request package and recommends action to the Project Manager.
- 11 - The Project Manager reviews the Class 3 Change Request.

The Project Manager reviews the Class 3 Change Request package and Change Control Board recommendations.
- 12 - The Project Manager approves/disapproves the Class 3 Change Requests.

For Class 3 Change Requests, the Project Manager is the final approving authority. Approval is indicated by signature in the appropriate 'Final Approval' block on the Change Request form. The approved Class 3 Change Request package is forwarded to PM&I.
- 13 - The Associate Project Manager evaluates the Class 4 Change Request.

The Associate Project Manager evaluates Class 4 Change Requests.
- 14 - The Associate Project Manager approves/disapproves the Class 4 Change Request.

For Class 4 Change Requests, the Associate Project Manager is the final approving authority. Approval is indicated by signature in the appropriate 'Final Approval' block on the Change Request form. The approved Class 4 Change Request package is forwarded to PM&I.



- 15 - The Control Account Manager evaluates the Class 5 Change Request.  
The Control Account Manager evaluates Class 5 Change Requests.
- 16 - The Control Account Manager approves/disapproves the Class 5 Change Request.  
For Class 5 Change Requests, the Control Account Manager is the final approving authority. Approval is indicated by signature in the appropriate 'Final Approval' block on the Change Request form. The approved Class 5 Change Request package is forwarded to PM&I.
- 17 - The Project Management & Integration Division determines the approval status of the Change Request.  
PM&I updates the Change Request Log after the review process has been completed. At this stage, the Change Request can be deferred, approved, disapproved or determined to be a duplicate of a previously submitted Change Request. Any disapproved CR is sent back to the affected Control Account Manager who will consult with the originator to determine any further action.

### **2.3 Documentation Phase (See Diagram 3.3)**

After the Change Request has been reviewed and approved by the appropriate authority, it enters the Documentation Phase where the proposed change is fully documented and implemented.

- 18 - The Project Management & Integration Division issues the Change Order.  
PM&I issues a Change Order for the approved Change Request. The Change Order is a completed, approved Change Request.
- 19 - The Associate Project Manager updates the technical documentation.  
Upon receipt of a Change Order, the affected Associate Project Manager ensures any relevant technical documentation (drawings, specifications, etc.) is revised.
- 20 - The Project Management & Integration Division updates the Performance Measurement Baseline and Working Detail Schedule.  
PM&I updates the Performance Measurement Baseline, the Working Detail Schedule and the associated Earned Value data. Historical EV data will not be revised. To improve document traceability, a new project baseline will be generated for each approved Change Request.





21 - The Control Account Manager implements the approved Control Account Plan.

The Control Account Manager performs the effort in accordance with the updated Control Account Plan.

### **3.0 Process Flow Diagrams**

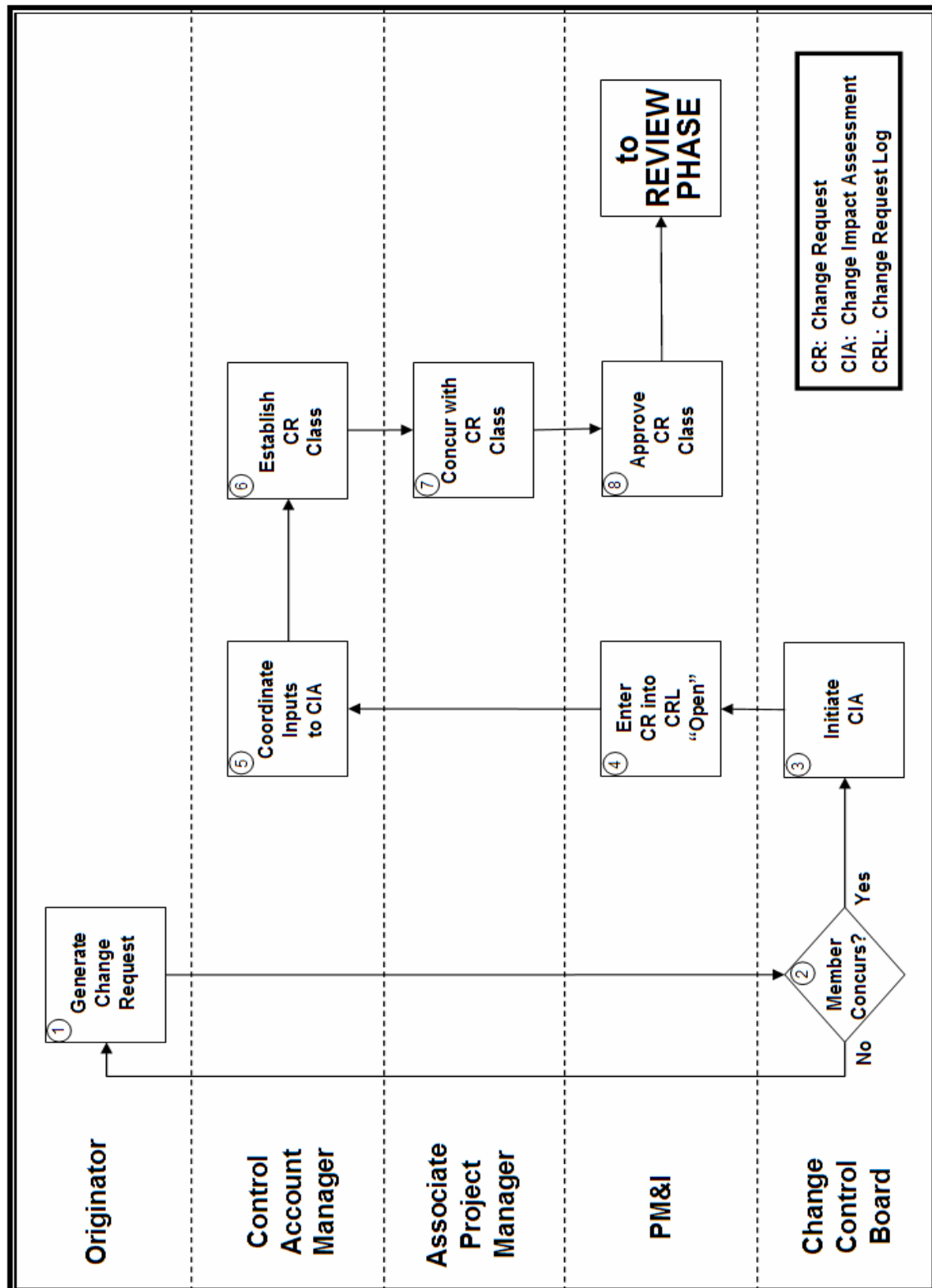
#### **3.1 Request Phase Flow Diagram**

#### **3.2 Review Phase Flow Diagrams**

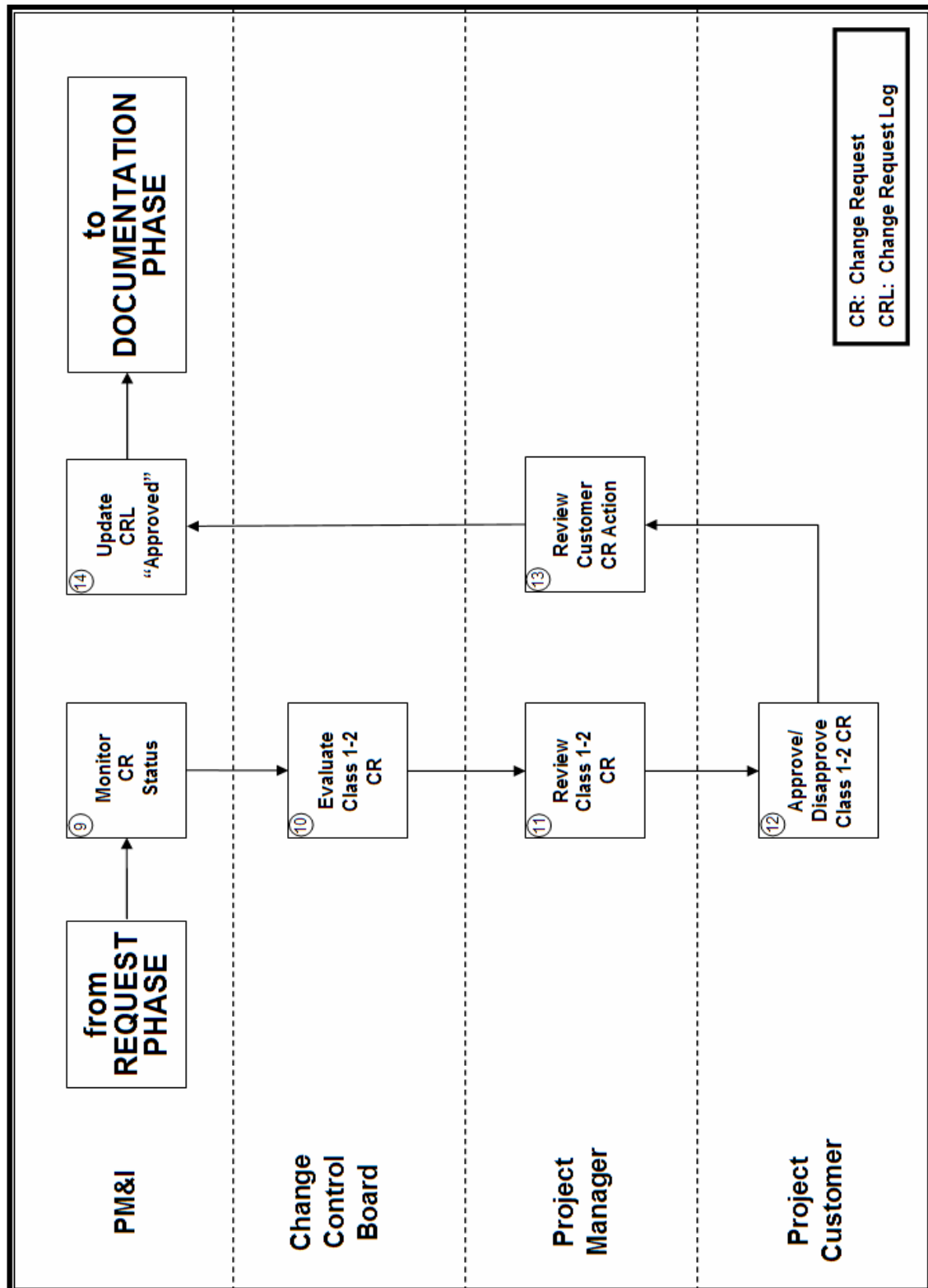
- **External Approval**
- **Internal Approval**

#### **3.3 Documentation Phase Flow Diagram**

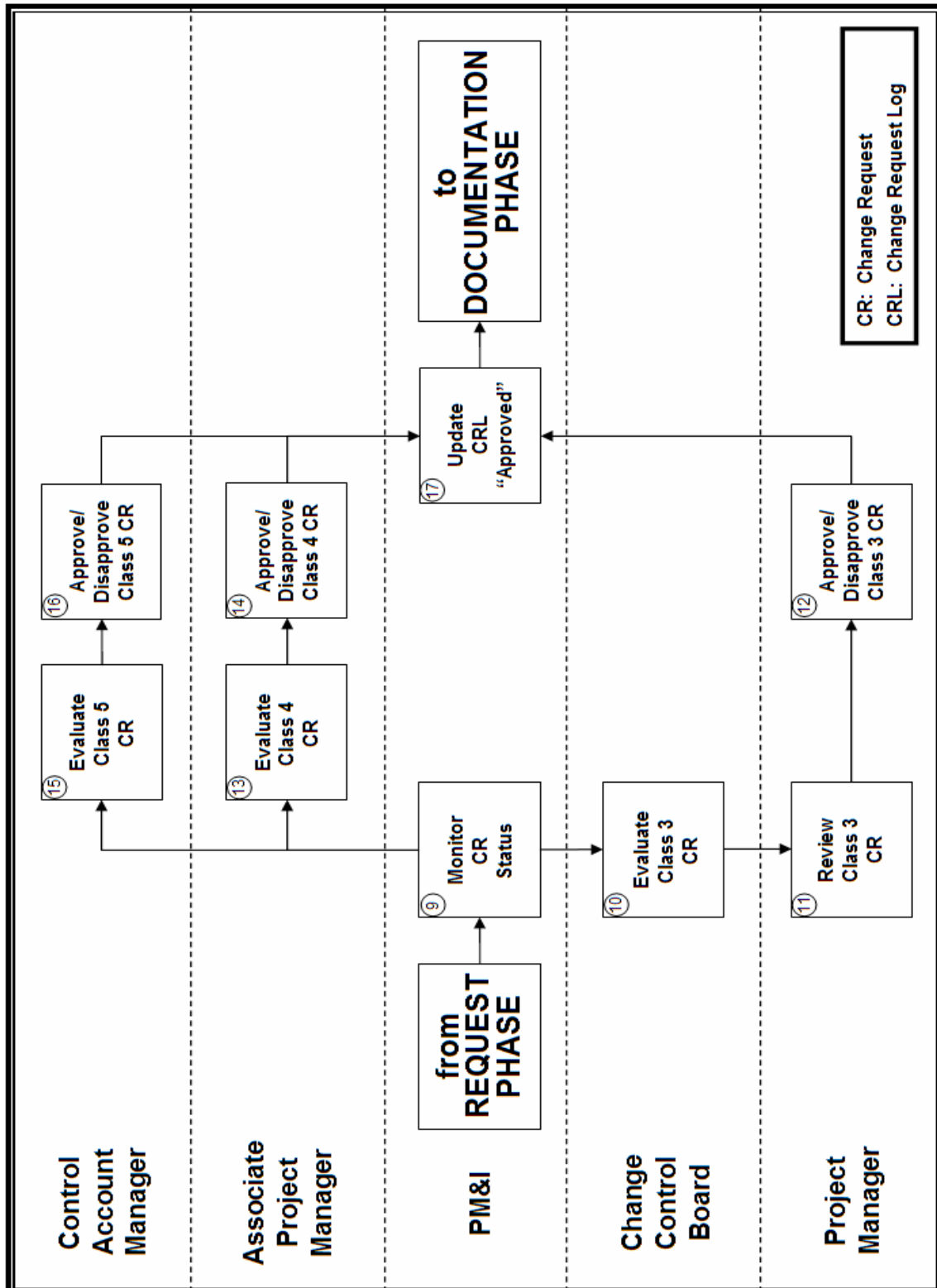
### 3.1 Request Phase Flow Diagram



### 3.2 Review Phase Flow Diagram (External Approval)



### 3.2 Review Phase Flow Diagram (Internal Approval)



### 3.3 Documentation Phase Flow Diagram

